

Abstract of the Disclosure

There is provided a two-stage optical regenerator for regenerating a data signal comprising a series of optical pulses. Each stage of the optical regenerator comprises a modulator for modulating a reference signal with an input signal, and an interferometer for causing the modulated reference signal to interfere with another version of the modulated reference signal delayed by less than one bit period of the data signal to regenerate the input signal. The input signal of the modulator of the first stage of the regenerator comprises the data signal, and the input signal of the modulator of the second stage of the regenerator comprises the output from the first stage of the regenerator. Relative phase offsets are induced at the outputs of the two interferometers of the regenerator to obtain either minimum transmission from each of the interferometers by the maximum power levels of the respective input signals transmitted therethrough, or maximum transmission from the interferometer of the first stage by the maximum power level of the data signal, and minimum transmission from the interferometer of the second stage by the minimum power level of the output from the first stage of the regenerator.